

WHAT IS CLAIMED IS:

- 1 1. An intravascular balloon catheter comprising:
2 a catheter body having a proximal end, a distal end, and a guidewire lumen
3 therebetween; and
4 a first balloon structure having a passage which is slidably receivable over the
5 catheter body.
- 1 2. An intravascular balloon catheter comprising:
2 a catheter body having a proximal end, a distal end, and a guidewire lumen
3 therebetween; and
4 a first balloon structure having a passage for slidably receiving the catheter
5 body.
- 1 3. An intravascular catheter comprising:
2 a catheter body having a proximal end, a distal end, and a guidewire lumen
3 therebetween; and
4 a tubular structure having a self-expandable prosthesis thereon and a passage
5 for slidably receiving the catheter body.
- 1 4. An intravascular balloon catheter as in Claim 3, wherein the self-
2 expandable prosthesis is a stent.
- 1 5. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 catheter body comprises an axially collapsible elongate member.
- 1 6. An intravascular balloon catheter as in Claim 5, wherein the axially
2 collapsible elongate member is of a telescopic construction.
- 1 7. An intravascular balloon catheter as in Claim 5, wherein the axially
2 collapsible elongate member is of a convoluted construction.
- 1 8. An intravascular balloon catheter as in Claim 5, 6, or 7, wherein the
2 axially collapsible elongate member is affixed to the passage.
- 1 9. An intravascular balloon catheter as in Claim 8, wherein the axially
2 collapsible elongate member is affixed to the exterior of the passage.

1 10. An intravascular balloon catheter as in Claim 8, wherein the axially
2 collapsible elongate member is affixed to the interior of the passage.

1 11. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 catheter body comprises a tubular member having at least one lumen.

1 12. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein a
2 perimeter of the catheter body has a circular, oblong, or elliptical shape.

1 13. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 distal end of the catheter body is axially tapered for a length of at least 3 mm.

1 14. An intravascular balloon catheter as in Claim 13, wherein the distal
2 end of the catheter body is axially tapered for a length of at least 0.5 mm.

1 15. An intravascular balloon catheter as in Claim 14, wherein the distal
2 end of the catheter body is axially tapered for a length of at least 0.1 mm.

1 16. An intravascular balloon catheter as in Claim 1, 2, or 3, further
2 comprising an atraumatic tip at the distal end of the catheter body.

1 17. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 balloon structure distal end is distally tapered.

1 18. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 catheter body is formed at least in part from a polymer material, a composite material, a
3 braided material, a metal material, or a metal alloy.

1 19. An intravascular balloon catheter as in Claim 18, wherein the catheter
2 body is formed from a polymer material, a composite material, a braided material, or a metal
3 material.

1 20. An intravascular balloon catheter as in Claim 18, wherein the metal
2 alloy comprises a nickel titanium alloy.

1 21. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 catheter body comprises multiple tubular members coupled to one another.

1 22. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 balloon structure comprises a shaft including an inflation lumen extending at least along a
3 portion thereof.

1 23. An intravascular balloon catheter as in Claim 22, wherein the shaft has
2 sufficient column strength to advance the balloon structure over the catheter body.

1 24. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 balloon structure comprises an inflation tube extending proximally from the balloon when the
3 balloon is disposed near the distal end of the catheter body.

1 25. An intravascular balloon catheter as in Claim 24, wherein the inflation
2 tube has sufficient column strength to advance the balloon structure over the catheter body.

1 26. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 balloon structure comprises a distal section having an inflatable member disposed thereat,
3 and a lumen comprising an inflation lumen extending proximally from the inflatable member.

1 27. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 balloon structure comprises a distal section having an inflatable member disposed thereat,
3 and the passage at least in part extends proximally from the inflatable member.

1 28. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 balloon structure comprises a distal section having an inflatable member disposed thereat,
3 and the passage at least in part extends distally from the inflatable member.

1 29. An intravascular balloon catheter as in Claim 22, 23, 24, 25 or 26,
2 wherein an axial groove is formed over at least a portion of the length of the inflation tube to
3 removably receive at least a portion of the catheter body.

1 30. An intravascular balloon catheter as in Claim 22, 23, 24, 25 or 26,
2 wherein an axial groove is formed over at least a portion of the length of the inflation tube to
3 removably receive at least a portion of the catheter body.

1 31. An intravascular balloon catheter as in Claim 30, wherein the groove
2 has a length in the range from 10 cm to 150 cm and an opening in the range from 0.001
3 inches to 0.014 inches.

1 32. An intravascular balloon catheter as in Claim 22, 23, 24, 25 or 26,
2 wherein the inflation lumen has a length in the range from 10 cm to 150 cm.

1 33. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 catheter body has an inflation lumen which mates with an inflation port on the balloon
3 structure, wherein the balloon structure is disposed near the distal end of the catheter body.

1 34. An intravascular balloon catheter as in Claim 33, wherein the balloon
2 structure comprises a deployment shaft extending proximally from the balloon when the
3 balloon is disposed near the distal end of the catheter body.

1 35. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 catheter body is substantially free from structure at the proximal end which would interfere
3 with passage of the balloon structure over the proximal end of the catheter body.

1 36. An intravascular balloon system comprising a balloon catheter as in
2 Claim 1, 2, or 3, further comprising a second balloon structure having a passage for slidably
3 receiving the catheter body.

1 37. An intravascular balloon catheter system comprising a balloon catheter
2 as in Claim 1, 2, or 3, further comprising a second balloon structure having a passage which
3 is slidably receivable over the catheter body.

1 38. An intravascular balloon catheter as in Claim 1, 2, 36, or 37, further
2 comprising an expandable prosthesis disposed over at least a portion of the first balloon
3 structure.

1 39. An intravascular balloon catheter system as in Claim 37 or 36, further
2 comprising an expandable prosthesis disposed over the second balloon structure.

1 40. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 catheter body is axially slit over at least a portion of the length of the guidewire lumen.

1 41. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 catheter body is spirally slit over at least a portion of the length of the guidewire lumen.

1 42. An intravascular balloon catheter as in Claim 40, wherein the slit
2 comprises multiple slits.

1 43. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 catheter body includes apertures along at least a portion of the length of the guidewire lumen
3 fluidically connecting the guidewire lumen to the exterior of the catheter body.

1 44. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein an
2 axial slit is formed over at least a portion of the length of the catheter body to removably
3 receive an inflation tube of the balloon structure.

1 45. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 catheter body has a length in the range from 50 cm to 200 cm, and outer diameter in the range
3 from 1 F to 10 F, and a guidewire lumen diameter in the range from 0.2 mm to 2 mm.

1 46. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 balloon structure, further comprises a sleeve having an inflatable balloon disposed over an
3 outer surface of the sleeve, wherein the passage is formed axially in the sleeve.

1 47. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 balloon structure, further comprises a sleeve having an inflatable balloon disposed over at
3 least a portion thereof, wherein the passage is an axial passage distal to a balloon chamber.

1 48. An intravascular balloon catheter as in Claim 46, wherein the sleeve
2 has a length in the range from 3 cm to 50 cm and the inflatable balloon has a length in the
3 range from 1 cm to 5 cm.

1 49. An intravascular balloon catheter as in Claim 46, wherein at least a
2 portion of the sleeve is slidably receivable over the catheter body.

1 50. An intravascular balloon catheter as in Claim 1, 2, 3, 36, 37, or 39,
2 further comprising a deployable embolic capture element on the catheter body.

1 51. An intravascular balloon catheter as in Claim 50, wherein the
2 deployable embolic capture element is located within 20 cm of the distal end of the catheter
3 body.

1 52. An intravascular balloon catheter as in Claim 50, wherein catheter
2 body embolic capture element is configured for deployment as it is disposed distal to a
3 balloon structure distal tip.

1 53. An intravascular balloon catheter as in Claim 52, wherein a portion of
2 the catheter body including the embolic capture element is disposed distal to the distal tip of
3 the balloon structure by retracting the balloon structure proximally.

1 54. An intravascular balloon catheter as in Claim 52, wherein a portion of
2 the catheter body including the embolic capture element is disposed distal to the distal tip of
3 the balloon structure by advancing the distal tip of the catheter body distal to the balloon
4 structure distal tip.

1 55. An intravascular balloon catheter as in Claim 50, wherein the balloon
2 structure further includes a retractable sleeve having a distal tip, and the catheter embolic
3 capture element is configured for deployment as a portion of the catheter body including the
4 embolic capture element is disposed distal to the distal tip of the retractable sleeve.

1 56. An intravascular balloon catheter as in Claim 55, wherein the portion
2 of the catheter body including the embolic capture element is disposed distal to the distal tip
3 of the balloon structure by retracting the retractable sleeve proximally from the catheter body
4 portion.

1 57. An intravascular balloon catheter as in Claim 56, wherein the portion
2 of the catheter body including the embolic capture element is disposed distal to the distal tip
3 of the retractable sleeve by advancing the distal tip of the catheter body distal to the
4 retractable sleeve distal tip.

1 58. An intravascular balloon catheter as in Claim 1, 2, 3, 36, 37, or 39,
2 further comprising a deployable embolic capture element on the first balloon structure.

1 59. An intravascular balloon catheter as in Claim 1, 2, 3, 36, 37, or 39,
2 further comprising a second balloon on the catheter body.

1 60. An intravascular balloon catheter as in Claim 59, further comprising an
2 expandable vascular prostheses disposed over the second balloon.

1 61. An intravascular balloon catheter as in Claim 1, 2, 3, 36, 37, or 39,
2 further comprising a self-expanding prosthesis on the catheter body.

1 62. An intravascular balloon catheter as in Claim 61, wherein the
2 prosthesis in an unexpanded state is distal to the balloon structure.

1 63. An intravascular balloon catheter as in Claim 62, wherein the balloon
2 structure further comprises a retractable sleeve configured to keep the prosthesis in an
3 unexpanded state until the sleeve is retracted proximally away from the prosthesis.

1 64. An intravascular balloon catheter as in Claim 61, wherein the
2 prosthesis in unexpanded state is at least partially under the balloon structure.

1 65. An intravascular balloon catheter as in Claim 1, 2, 3, 36, 37, or 39,
2 further comprising an atherectomy element coupled to a distal section of the catheter body.

1 66. An intravascular balloon catheter as in Claim 1, 2, 3, 36, 37, or 39,
2 further comprising at least one pressure sensor coupled to a distal section of the catheter
3 body.

1 67. An intravascular balloon catheter as in Claim 1, 2, 3, 36, 37, or 39,
2 further comprising at least one infusion port at a distal section of the catheter body.

1 68. An intravascular balloon catheter as in Claim 1, 2, or 3, further
2 comprising a second catheter body having a passage which is slidably receivable over the
3 catheter body.

1 69. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 guidewire lumen extends from the catheter body proximal end to a distal tip at the catheter
3 body distal end.

1 70. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 catheter body is formed at least in part from a polymer material, a composite material, a
3 braided material, a metal material, or mixtures or combinations thereof.

1 71. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 catheter body comprises multiple tubular members fluidically connectable to one another.

1 72. An intravascular balloon catheter as in Claim 26, wherein the balloon
2 structure includes an axial groove along at least a portion thereof for slidably receiving at
3 least a portion of the catheter body.

1 73. An intravascular balloon catheter as in Claim 72, wherein the groove is
2 a single continuous groove.

1 74. An intravascular balloon catheter as in Claim 72, wherein the groove
2 includes multiple intermittent grooves.

1 75. An intravascular balloon catheter as in Claim 26, wherein the catheter
2 body includes an axial groove along at least a portion thereof for slidably receiving at least a
3 portion of the balloon structure.

1 76. An intravascular balloon catheter as in Claim 72 or 75, wherein the
2 groove includes transverse ends.

1 77. An intravascular balloon catheter as in Claim 76, wherein the groove
2 transverse ends are abutting.

1 78. An intravascular balloon catheter as in Claim 76, wherein the groove
2 transverse ends overlap.

1 79. An intravascular balloon catheter as in Claim 72 or 75, wherein the
2 groove has a length in the range from about 1 cm to about 200 cm.

1 80. An intravascular balloon catheter as in Claim 79, wherein the groove
2 has a length in the range from about 1 cm to about 150 cm.

1 81. An intravascular balloon catheter as in Claim 80, wherein the groove
2 has a length in the range from about 10 cm to about 150 cm.

1 82. An intravascular balloon catheter as in Claim 76, wherein the groove
2 has an opening formed between the transverse ends in the range from 0.001 inches to 0.1
3 inches.

1 83. An intravascular balloon catheter as in Claim 82, wherein the groove
2 has an opening formed between the transverse ends in the range from 0.001 inches to 0.014
3 inches.

1 84. An intravascular balloon catheter as in Claim 72 or 75, wherein the
2 groove has an inner diameter in the range of about 0.0145 to 0.03 inches.

1 85. An intravascular balloon catheter as in Claim 84, wherein the groove
2 has an inner diameter in the range of about 0.016 to 0.02 inches.

1 86. An intravascular balloon catheter as in Claim 1 or 26, wherein the
2 catheter body includes an axial slit extending along at least a portion thereof for slidably
3 receiving at least a portion of a guidewire therein.

1 87. An intravascular balloon catheter as in Claim 1 or 26, wherein at least
2 a portion of the length of the catheter body includes an axial slit for slidably receiving at least
3 a portion of the balloon structure.

1 88. An intravascular balloon catheter as in Claim 86, wherein a length of
2 the slit ranges from about 0.5 to about 200 cm.

1 89. An intravascular balloon catheter as in Claim 86, wherein the slit is a
2 single slit.

1 90. An intravascular balloon catheter as in Claim 86, wherein the slit
2 includes multiple intermittent slits.

1 91. An intravascular balloon catheter as in Claim 1, 2, or 3 wherein the
2 balloon structure, further comprises a sleeve forming at least in part the passage.

1 92. An intravascular balloon catheter as in Claim 91, further comprising a
2 deployable embolic capture element on the sleeve.

1 93. An intravascular balloon catheter as in Claim 50 or 51, wherein the
2 embolic capture element includes a filter having pores with a size ranging from about 1 to
3 about 200 microns.

1 94. An intravascular balloon catheter as in Claim 93, wherein the embolic
2 capture element includes a filter having pores with a size ranging from about 1 to about 100
3 microns.

1 95. An intravascular balloon catheter as in Claim 50 or 51, wherein the
2 embolic capture element includes a filter configured to be opened and/or closed by the axial
3 or radial movement of the inflatable balloon structure or the catheter body.

1 96. An intravascular balloon catheter as in Claim 61, wherein the
2 prosthesis in an unexpanded state is at least partially under the balloon structure in an
3 unexpanded state.

1 97. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 catheter body distal end includes a distal tip configured to be slidably disposable distal to a
3 distal tip of the balloon structure.

1 98. An intravascular balloon catheter as in Claim 26, wherein the balloon
2 structure distal portion lumen includes multiple lumens.

1 99. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein the
2 balloon structure comprises multiple lumens in a distal portion of the structure.

1 100. An intravascular balloon catheter as in Claim

1 91 wherein the sleeve forming the passage includes multiple lumens along at
2 least a portion thereof.

1 101. An intravascular balloon catheter as in Claim 72, wherein the axial
2 groove is, further configured to removably receive at least a portion of the catheter body.

1 102. An intravascular balloon catheter as in Claim 75, wherein the axial
2 groove is, further configured to removably receive at least a portion of the balloon structure.

1 103. An intravascular balloon catheter as in Claim 24 or 26, wherein an
2 axial groove is formed over at least a portion of the length of the inflation tube to slidably
3 receive at least a portion of the catheter body.

1 104. An intravascular balloon catheter as in Claim 1, 2, or 3, wherein an
2 axial slit is formed over at least a portion of the length of the catheter body to slidably receive
3 an inflation tube of the balloon structure.

1 105. An intravascular balloon catheter as in Claim 38, 39, 61, 62, 64, or 96,
2 wherein the prosthesis is a vascular prosthesis.

1 106. An intravascular balloon catheter as in Claim 50, or 51, wherein the
2 balloon structure includes a distal tip and the embolic capture element is configured for
3 deployment as a portion of the catheter body including the embolic capture element is distally
4 placed from the distal tip of the balloon structure.

1 107. An intravascular balloon catheter as in Claim 91, further comprising an
2 inflatable member disposed on an exterior of the sleeve.

1 108. A method for balloon exchange over a catheter body, comprising:
2 withdrawing a first balloon structure over a catheter body in a proximal
3 direction, wherein the catheter body remains in place over a guidewire in a blood vessel; and
4 introducing a second balloon structure over the catheter body in a distal
5 direction, wherein the catheter body remains in place over the guidewire in a blood vessel.

1 109. A method as in Claim 108, wherein the balloon structure that is
2 introduced over the catheter body is not the same as the balloon structure that is withdrawn
3 over the catheter body.

1 110. A method as in Claim 108, further comprising independently
2 expanding the first and second balloon structures which have been introduced to the blood
3 vessel.

1 111. A method as in Claim 110, wherein at least one of the balloon
2 structures are carrying a prosthesis which is deployed into the blood vessel by balloon
3 expansion.

1 112. A method as in Claim 110, wherein expanding the balloon structure
2 comprises introducing an inflation medium through an inflation tube connected to the balloon
3 structure.

1 113. A method as in Claim 110, wherein expanding the balloon structure
2 comprises introducing an inflation medium through an inflation lumen in the catheter body.

1 114. A method for withdrawal of a balloon structure over a catheter body,
2 the method comprising:
3 withdrawing the balloon structure over the catheter body in a proximal
4 direction, wherein the catheter body remains in place over a guidewire in a blood vessel.

1 115. A method for withdrawal of a balloon structure over a catheter body,
2 the method comprising:
3 withdrawing the balloon structure from an intracorporeal lumen over the
4 catheter body in a proximal direction; and
5 maintaining the catheter body within the corporeal lumen over a guidewire
6 placed in the intracorporeal lumen.

1 116. A method for balloon introduction over a catheter body, comprising:
2 introducing a first balloon structure over the catheter body in a distal direction,
3 wherein the catheter body remains in place over a guidewire in a blood vessel.

1 117. A method introduction of a balloon structure to an intracorporeal body
2 over a catheter body, comprising:
3 introducing the balloon structure over the catheter body in a distal direction;
4 and
5 maintaining the catheter body within the corporeal lumen over a guidewire
6 placed in the intracorporeal lumen.

1 118. A method for balloon catheter exchange over a catheter body,
2 comprising:
3 withdrawing a first balloon structure from an intracorporeal lumen over the
4 catheter body in a proximal direction;
5 maintaining the catheter body within the intracorporeal lumen; and
6 introducing a second balloon structure to the intracorporeal lumen over the
7 catheter body in a distal direction.

1 119. A method for balloon catheter exchange over a catheter body as in
2 Claim 118, wherein the maintaining step includes maintaining the catheter body within the
3 intracorporeal lumen over a guidewire in the intracorporeal lumen.

1 120. A method for introduction of an intracorporeal device to an
2 intracorporeal body, comprising:
3 introducing a first device to an intracorporeal body over a catheter body in a
4 distal direction;
5 performing a diagnostic or therapeutic act using the first device;
6 withdrawing the first device from the intracorporeal body in a proximal
7 direction;
8 maintaining the catheter body within the intracorporeal lumen.

1 121. A method for introduction of an intracorporeal device to an
2 intracorporeal body as in Claim 120, further comprising:
3 introducing a second device to the intracorporeal body over the catheter body
4 in a distal direction.

1 122. A method for introduction of an intracorporeal device to an
2 intracorporeal body as in Claim 121, further comprising:
3 maintaining the catheter body within the intracorporeal lumen.

1 123. A method for introduction of an intracorporeal device to an
2 intracorporeal body, comprising:
3 introducing at least a portion of a device to the intracorporeal body in a distal
4 direction, the device comprising a catheter body and a first structure having a passage for
5 slidably receiving the catheter body;
6 performing a diagnostic or therapeutic procedure using the first structure;
7 withdrawing the first structure from the intracorporeal body in a proximal
8 direction over the catheter body;
9 maintaining the catheter body within the intracorporeal lumen.

1 124. A method for introduction of an intracorporeal device to an
2 intracorporeal body as in Claim 123, further comprising:

introducing a second structure to the intracorporeal body over the catheter body in a distal direction.

125. A method for introduction of an intracorporeal device to an intracorporeal body as in Claim 124, further comprising:
maintaining the catheter body within the intracorporeal lumen.

126. A method for introduction of an intracorporeal device to an intracorporeal body as in Claim 124 or 125, further comprising:
performing a diagnostic or therapeutic act using the second structure.

127. A method for introduction of an intracorporeal device to an intracorporeal body as in Claim 124 or 125, wherein first structure includes a dilatation balloon and the diagnostic or therapeutic act using the first structure comprises dilatation of a vessel.

128. A method for introduction of an intracorporeal device to an intracorporeal body as in Claim 127, wherein the second structure includes a expandable prosthesis and the diagnostic or therapeutic act using the second structure comprises expanding the prosthesis within the vessel.

129. A method for introduction of an intracorporeal device to an intracorporeal body as in Claim 123, wherein the catheter body and the first structure are introduced together to the intracorporeal body.

130. A method for introduction of an intracorporeal device to an intracorporeal body as in Claim 123, wherein in the catheter body is at least partially introduced to the intracorporeal body before the first structure.

131. A method for introduction of an intracorporeal device to an intracorporeal body as in Claim 123, wherein the first structure is at least partially introduced to the intracorporeal body before the catheter body.

132. An intravascular balloon catheter receivable over an elongate body, comprising:
a first balloon structure having proximal and distal sections and including a shaft having an inflation lumen extending at least along a portion thereof;

5 a passage at the structure distal section which is slidably receivable over the
6 elongate body; and

7 an axial groove formed over at least a portion of the length of the shaft to
8 removably receive at least a portion of the elongate body.

1 133. An intravascular balloon catheter as in Claim 132, wherein the groove
2 is formed along the proximal two third length of the balloon structure.

1 134. An intravascular balloon catheter as in Claim 132, wherein the groove
2 is formed along the the length of the balloon structure proximal to the passage.

1 135. An intravascular balloon catheter as in Claim 134, wherein the groove
2 extends within at least a portion of the the passage.

1 136. An intravascular balloon catheter as in Claim 132, wherein the groove
2 is formed along an outside surface of the baloon structure shaft.

1 137. An intravascular balloon catheter as in Claim 132, wherein the groove
2 is formed along an outside surface of an inflation lumen.

1 138. An intravascular balloon catheter as in Claim 132, wherein shaft is
2 formed at least in part from a material configured to provide sufficient column strength to the
3 shaft.

1 139. An intravascular balloon catheter as in Claim 132, wherein shaft is
2 formed at least in part from stainless steel or nickle titanium alloy.

1 140. An intravascular balloon catheter as in Claim 132, wherein the groove
2 is a single continuous groove.

1 141. An intravascular balloon catheter as in Claim 132 or 140, wherein the
2 groove is configured to provide a continuous path for the elongate body along at least a
3 portion of the catheter structure.

1 142. An intravascular balloon catheter as in Claim 132 or 140, wherein the
2 groove is configured to provide a continuous path for the elongate body along the proximal
3 section of the catheter structure to a point proximal to or at least within the passage.

1 143. An intravascular balloon catheter as in Claim 132, wherein the groove
2 includes multiple intermittent grooves.

1 144. An intravascular balloon catheter as in Claim 132, wherein the groove
2 includes transverse ends.

1 145. An intravascular balloon catheter as in Claim 144, wherein the groove
2 transverse ends are abutting.

1 146. An intravascular balloon catheter as in Claim 144, wherein the groove
2 transverse ends overlap.

1 147. An intravascular balloon catheter as in Claim 144, wherein the groove
2 has a length in the range from about 1 cm to about 200 cm.

1 148. An intravascular balloon catheter as in Claim 144, wherein the groove
2 has a length in the range from about 1 cm to about 150 cm.

1 149. An intravascular balloon catheter as in Claim 144, wherein the groove
2 has a length in the range from about 10 cm to about 150 cm.

1 150. An intravascular balloon catheter as in Claim 144, wherein the groove
2 has an opening formed between the transverse ends in the range from 0.001 inches to 0.1
3 inches.

1 151. An intravascular balloon catheter as in Claim 144, wherein the groove
2 has an opening formed between the transverse ends in the range from 0.001 inches to 0.014
3 inches.

1 152. An intravascular balloon catheter as in Claim 132, wherein the groove
2 has an inner diameter in the range of about 0.0145 to 0.03 inches.

1 153. An intravascular balloon catheter as in Claim 132, wherein the groove
2 has an inner diameter in the range of about 0.016 to 0.02 inches.

1 154. An intravascular balloon catheter as in Claim 132, wherein the
2 elongate body is a catheter body.

1 155. An intravascular balloon catheter as in Claim 132, wherein the
2 elongate body is a guidewire.

1 156. A method for introduction of an intracorporeal device to an
2 intracorporeal body, comprising:
3 advancing a balloon structure as Claims 132 to an intracorporeal site over an
4 elongate member and receiving the elongate member at least in part within the balloon
5 structure axial groove.

1 157. A method for advancing an elongate body within an intracorporeal
2 body, comprising:
3 providing a balloon structure as Claims 132;
4 receiving the elongate body at least in part within the balloon structure axial
5 groove;
6 advancing the elongate body into the corporeal body.

1 158. A method for advancing a balloon structure within an intracorporeal
2 body, comprising:
3 providing an elongate body;
4 providing a balloon structure as Claim 132;
5 disposing the elongate body at least in part within the balloon structure axial
6 groove;
7 advancing the balloon structure and catheter body together within the
8 intracorporeal body; and
9 performing a therapeutic or diagnostic procedure.

1 159. A method for exchanging an elongate body from a balloon structure,
2 comprising:
3 withdrawing the elongate body in a proximal direction from a balloon
4 structure as in Claim 132; and
5 advancing a second elongate body along at least a portion of the axial groove of
6 the balloon structure in a distal direction within the intracorporeal body.

1 160. A kit comprising:
2 a catheter body;